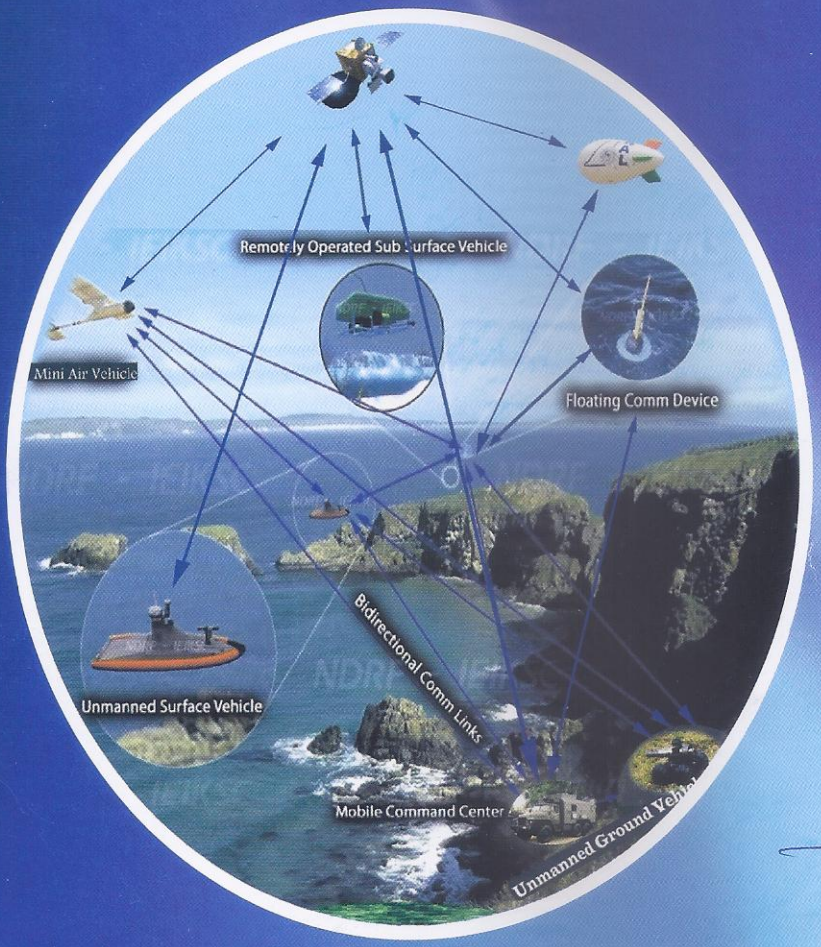
Two-Day Workshop on
Intelligent Autonomous Unmanned Systems - 2014
21-22 August 2014

SOUVENIR



(S. ELVARASU)

Organized By

NATIONAL DESIGN AND RESEARCH FORUM
THE INSTITUTION OF ENGINEERS (INDIA)
INDIAN SOCIETY FOR NETWORKED AUTONOMOUS UNMANNED SYSTEMS

Sponsoring Organizations

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IAUS TECHNICAL SESSION: 4

Systems & Technologies-Underwater Vehicles

Friday, 22 August 2014	09:30 to 11:00 hrs
HALL A	
NIMHANS Convention Centre, Bengaluru	
Chair Person	Dr.S Raj Pandian Director-Research & Professor, Dept of Information Technology Velammal College of Engineering & Technology, Madurai
Title	Speaker
Challenges in the Development of Sensors for Marine Applications	Dr.K Nataraja Prof & HOD, Dept of Telecommunication Engineering MS Ramaiah Institute of Technology, Bangalore
Challenges in Communication Technologies for Surface & Underwater Vehicles	Dr.P Murali Krishna Scientist 'E' Naval Physical and Oceanographic Laboratory,Cochin
Issues & Challenges in the Design & Development of Miniature Underwater Vehicles	Prof.Leena Vachhani Assistant Professor, Systems and controls engineering Indian Institute of Technology-Bombay

Indian Technology Congress 2014

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IAUS TECHNICAL SESSION: 5

Communication & Networking Challenges for Unmanned Systems

Friday, 22 august 2014	11:30 to 13:00 hrs
HALL A	
NIMHANS Convention Centre, Bengaluru	
Chair Person	Prof.R M Vasagam Former Vice Chancellor – Anna University Chairman – Aerospace Division Engineering Board, The Institution of Engineers (India)
Title	Speaker
Issues and Challenges in the Design of Autonomous Ground Vehicles & their Networked Operation	Dr.P Sivakumar Director Outstanding Scientist Combat Vehicles Research & Development Establishment, Chennai
Networked Autonomous Underwater Vehicles for Monitoring and Surveillance	Dr.S Raj Pandian Director-Research & Professor, Dept of Information Technology Velammal College of Engineering & Technology, Madurai
Issues and Challenges in the Development of Lighter-than-Air Vehicle Systems for Application in Networked Environment	Dr.S Selvarajan Chief Scientist CSIR-National Aerospace Laboratories, Bangalore

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IAUS TECHNICAL SESSION: 6

System Design & Operational Challenges for Unmanned Systems

Friday, 22 august 2014	14:00 to 15:30 hrs
HALL A	
NIMHANS Convention Centre, Bengaluru	
Chair Person	Prof. D N Reddy Chairman, RAC - DRDO, Former VC, JNTU (H)
Title	Speaker
Collaborative Operation of Unmanned Air Vehicles: Perspectives	Dr.Hemendra Arya Assistant Professor, Department of Aerospace Engineering Indian Institute of Technology-Bombay
Design and Development of Unmanned Air Vehicles for Societal Applications	Dr.K Senthil Kumar Associate Professor & Director In-charge, CASR Madras Institute of Technology, Anna University, Chennai
Design & Development of Networked Unmanned Systems based on Lighter-than-Air Technology	Dr. R S Pant Professor, Department of Aerospace Engineering Indian Institute of Technology-Bombay

MAIN HALL: Valedictory Session (Indian Technology Congress- ITC 2014 and Workshops) **16:00 - 17:30 hrs**

SPEAKER'S PROFILE & ABSTRACTS

Dr. S. Selvarajan Chief Scientist,
CSIR-National Aerospace Laboratories, Bangalore

Dr. S. Selvarajan completed his B.E (1980) at College of Engineering, Guindy, University of Madras, and M.S (1984) and Ph.D (1998) degrees at IIT Madras. As a DAAD Sandwich scholar, he carried out advanced research in the Institute of Thermal and Fluid Sciences at Ruhr-University of Bochum, Germany.

He is presently working as a Chief Scientist at the Center for Civil Aircraft Design and Development, Council of Scientific and Industrial Research NAL, Bangalore. He has over 30 years of research experience in the field of aerospace sciences contributing over 30 International Journal/Conference Publications. Presently, He is leading the advanced vehicle systems group, engaged in the development of lighter-than-air, fixed-wing, multi-terrain and hybrid vehicle systems for a variety of mission oriented applications. Most recently, he has been contributing to improvising traditional water vessel systems for inland applications.

Issues and Challenges in the Development of Lighter-than-Air Vehicle Systems for Application in Networked Environment

The presentation would bring out highlights of Lighter-Than-Air Vehicle (LTAV) scenario:

- It is an Indian (Dr. Singhania) who holds the record of highest in hot-air balloon flight ever
- Weather ballooning is routinely carried out and monitored by IMD at various locations
- India has a world class 'National Balloon Facility', capable of launching balloons for near space research
- India is one of the countries in possession of operational aerostats
- Although, historically, India has been the most favored destination of airships, there exists no operational airship yet

CSIR NAL Bangalore has been engaged in the development of a combo-tethered aerostat-cum-powered blimp along with ADRDE Agra. It is envisaged that these strategic system are to network with land-water-air vehicle systems when challenged by disaster situations.

Google's 'project loon' is a recent example on issues and challenges in the development of lighter-than-air vehicle systems for application in networked environment.

Solar powered, self sustaining, hybrid vehicle (LTAV + Fixed-Wing) development holds a lot of promise for the future.